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REMARKS

Claims 31, 34, 36, 41 and 43 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and all of the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejection(s) and are not directed at distinguishing the present invention from the art of record in this case.

Next, claims 25-28 and 39 are objected to by the Examiner under 35 U.S.C. §102 as being anticipated by Gerhardinger et al. '199 (United States Patent No. 5,714,199). The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the above amendments and the following remarks.

Claims 25 and 26 are replaced by new claims 45 and 46, respectively. Independent claim 45 includes specifically that thermosetting powder is deposited on a first surface of the glass substrate, and that heat applied to the thermosetting powder is applied by transmission through the glass substrate from the second surface to the first surface. It is respectfully submitted that Gerhardinger et al. '199 does not in any way teach, suggest, disclose or remotely hint at this feature. The Examiner states in relation to the Gerhardinger et al. '199 disclosure, that:

... the heat within the glass substrate after formation would radiate heat through the substrate ... and thereby cure the powder to form the coating.

But the heat within the Gerhardinger et al. '199 glass substrate is not "applied by transmission of the heat through the glass substrate from the second surface to the first surface"—as presently claimed—and thus it is respectfully submitted that the citation does not anticipate the new method of Claim 45. New Claim 46 and each of claims 27 and 28 directly depend from claim 45 and, in this respect, are each clearly patentably distinguished over Gerhardinger et al. '199. The same reasons apply to the subject matter of claim 39 now re-written as new independent claim 47 which includes all the limitations of claim 45.

Turning now to the various objections of the Examiner raised, under 35 U.S.C. §103, and more specifically the rejection of claims 25-31 and 39 as being unpatentable over Gerhardinger et al. '199 in view of Sopko '601 (United States Patent No. 4,022,601). The

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Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the above amendments and the following remarks.

In this regard it is notable that Sopko '601 is not concerned with the same problem as Gerhardinger et al. '199 and the presently claimed invention, namely, the deposition and curing of a powder on a glass substrate, but rather with coating by pyrolyzing a film-forming composition directly onto a substrate (e.g., see column 2, lines 66-68). Accordingly, it is submitted that there is no obvious relevance or applicability of the Sopko '601 teachings to be combined with Gerhardinger et al. '199 problem.

The Examiner argues that he "considers the vaporization of the material equivalent to the powdered form. The Applicant respectfully requests that if this view is continued in a further rejection of claims of this application, the Examiner enter a sworn Declaration so that the Applicant can then enter suitably contrary evidence.

Even if the Examiner's view on this latter issue were possibly correct, it is to be noted that Sopko '601's teachings--concerning the location of heaters on the opposite side of his substrate from the vaporization nozzles--is not related in any way to the formation of the coating on the other substrate. As recognized by the Examiner, Sopko '601's purpose in locating the heating means on the opposite side of the glass substrate is to prevent warpage of the glass--*but there is no reference by Sopko '601 to it improving the durability of the coating.* The reference to improved durability is solely in relation to the use of a heat source above the glass, as follows:

...a heat source above the glass ribbon to minimize radiation, conduction and/or convection heat losses to increase the durability of the coating (see column 10, lines 19-22).

The use of the heat source beneath the glass is stated (see column 10, lines 22-23) to be for elimination of warpage. The independence of the heating below the glass from the formation of the coating above is emphasized strongly in the paragraph bridging lines 18 and 26 of column 10 of Sopko '601 where three possibilities are set out drawing distinctions in the purpose between heat applied above and heat applied below (see especially the distinction of the purpose between items (2) and (3) of that paragraph). Accordingly, it is respectfully submitted that the teaching of Sopko '601 concerning heat applied to the underside of the glass (that is to say, to the side opposite to that on which the coating is formed) has no obvious relevance to the task with which Gerhardinger et al. '199 is concerned, namely, the provision of a powder coating on a glass substrate. Thus, it is respectfully submitted that the applied

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references of Gerhardinger et al. '199 and Sopko '601 are not properly combinable with one another as alleged.

Thus, not only is the teachings of Sopko '601 of no obvious relevance to the Gerhardinger et al. '199 task because (a) it is concerned with coating by pyrolyzing a film-forming composition, and not through deposition and curing of a powder, it is also not of any relevance because (b) it specifically teaches and relates to the avoidance of warping of the glass. The Examiner sets out, in paragraph 11 of the Examiner's Detailed Action, the reasoning for rejecting the claims and asserts that:

... the primary motivation to apply heat from the opposite side of the vaporization nozzles is to prevent glass warpage and further increases the durability of the coating. (Emphasis added.)

As indicated above, Sopko '601 does not teach that an increase in durability of the coating results from heat applied from the "opposite side". The specific teaching is that it is the heat applied to the top side—not the "opposite side"—that increases durability. Accordingly, it is not Sopko '601 that teaches that the heat from the "opposite side" has any effect at all on the coating or would, as the Examiner states:

... lead to a coating that is more complete and less likely to delaminate.

The Examiner's attribution of these advantages to the heat applied to "the opposite side" is, at best, mere speculation on the part of the Examiner, but is certainly not founded on anything specifically taught, suggested, disclosed or remotely hinted at by Sopko '601. Nevertheless, the Examiner proceeds from these advantages and alleges that:

Therefore, it would have been obvious to apply heat from the opposite side of the vaporization nozzles with the materials disclosed by Gerhardinger for the present invention, which would have a coating layer that is durable and may prevent delamination.

The premise on which that allegation of obviousness is made, namely, that Sopko '601 teaches that heat applied to the "opposite side" has an advantageous, or any, effect on the coating or its formation, is clearly and fundamentally flawed (as explained above). Accordingly, the substance of the allegation of obviousness is similarly clearly flawed.

Under the circumstances, therefore, it is respectfully submitted that each of claims 45 and 46 (the re-written subject matter of claims 25 and 26), 27-31 and 47 (the re-written subject matter of claim 31) is patentable over Gerhardinger et al. '199 in view of Sopko '601. Furthermore, each of these claims requires (directly or through dependency) the deposition of thermosetting powder on a first surface of a glass substrate and the curing of the powder by heat transmitted through the glass from the second surface to the first surface. It is respectfully

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submitted that there is no curing of powder in this way in either Gerhardinger et al. '199 and/or Sopko '601, and in any case it is respectfully submitted that the temperature difference between the top and bottom surfaces of Sopko '601's substrate would be adverse to any transmission of heat applied to Sopko '601's "opposite side" through the glass to the higher-temperature top side.

Claim 32 depends, through claim 29, on claim 45, and it is submitted therefore that like claims 45 and 29, this claim is also patentable over Sopko '601 in view of Gerhardinger et al. '199 and Horinka. It is notable that Horinka indicates application of the infra-red energy directly to the powder-coating surface (second Figure), rather than to that surface through the substrate. In this respect therefore, Horinka adds nothing concerning the fundamental distinction of pending claim 45 over the teachings, disclosures, suggestions and hints of Sopko '601 and/or Gerhardinger et al. '199.

With respect to Claims 33-36 and 39-44, being rejected as unpatentable over Sopko '601 in view of Gerhardinger et al. '199 and further in view of Leach '174 (United States Patent No. 5,300,174), Bowser '996 (United States Patent No. 3,758,996) and Weinlader, it is to be noted that claims 33-36 directly or indirectly depend from claim 45 and therefore, like claim 45, are patentable over Sopko '601 in view of Gerhardinger et al. '199. The same applies to claim 47 (the now re-written subject matter of Claim 39) since this claim includes all the limitations of claim 45 which is now believed to be allowable as noted above.

The Applicant acknowledges that the additional references of Leach '174, Bowser '996 and Weinlader may arguably relate to the features indicated by the Examiner in the official action. Nevertheless, the Applicant respectfully submits that the combination of the base references of Sopko '601 and/or Gerhardinger et al. '199 with this additional art still fails to in any way teach, suggest or disclose the above distinguishing features of the presently claimed invention. As such, all of the raised rejections should be withdrawn at this time in view of the above amendments and remarks.

With regard to claims 40-44, claim 40 (from which each of claims 41-44 depends either directly or indirectly) specifies a powder-coated glass product in which the glass substrate is backed by a thermosetting powder coating, and metal foil is bonded to a back surface of the coating to extend inwardly across the back surface from the edges of the coating, and the metal foil extends only partially across the back surface from the edges by a distance within the range of 100 -150 mm for the purposes of reducing thermal stress in the glass substrate.

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Leach '174 discloses a metal foil bonded to the back surface of a powder coating, but *the foil extends fully across the back surface of the coating*, but does not disclose the situation specified in claim 40 where it extends only partially across the back surface by about 100 -150 mm.

As described in paragraphs [040]-[041] of the specification of the present application, it has been found according to the present invention that thermal stress can be adequately relieved in practice by using metal foil extending *only partially across the back powder-coated surface of the glass panel* rather than fully across the back, in particular, where the foil extends 100-150 mm from the edges of the coating. As described in the last two sentences of paragraph [033] of the specification, the partial covering provided by the foil provides efficient conduction of heat from the central region of the panel to its outer edges making the panel safe from thermal stress and enabling annealed, float glass to be used externally for architecturally purposes where toughened (or 'heat-strengthened') would otherwise be required.

The disclosure of Bowser '996 contains nothing to suggest that it has anything of relevance to the Gerhardinger et al. '199 powder-coated product, nor does it have any obvious relevance to the Leach '174 product. The Bowser '996 product is a double-glazed window unit in which the glass sheets 12 and 14 of the unit are separated from one another by a dehydrator element 24 which is held in place at the edges of the sheets 12 and 14 by two beads of moisture-resistant mastic 26 and 28. In the examples of the Bowser '996—see Figures 2 and 9, for example --a channel 34 straddles the mastic bead 28 for protection of the edges of the unit (see column 3, lines 62-65). The material of the channel 34 is not specifically identified, but in the examples of Figures 4 and 6 the channel 34 is replaced by a strip of metal foil 42 folded round the edge of the unit. In each of these latter examples, the sides of the folded foil 42 (as with channel 34 in the examples of Figures 2 and 9) extend from the edges of the unit to an extent covering the mastic 28 fully.

In paragraph 22 of the Examiner's Detailed Action it is stated that:

Bowser discloses a layer of aluminium foil disposed along the marginal edges of glass sheets. The motivation to apply the foil only on the edges is that less material may be used since the processing will be done on an in-line-type production platform to allow for similar results to a full layer, which would thereby decrease production costs.

It is submitted that the motivation to apply the foil only on the edges is more directly and obviously to allow the largest possible area of uncovered and unobstructed glass for the window, consistent with providing protective cover for the adhesive mastic at the edges. There

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is no suggestion, explicit or implicit, in the Bowser '996 teachings that the foil 42 plays any part in reducing thermal stress in the glass. Any part it plays in reducing such thermal stress in practice must in any event be regarded as minimal, and the position taken by the Examiner that:

... the aluminum foil measurement will be sufficient to prevent thermal stresses from forming. (last two lines of paragraph 20 of the Examiner's Detailed Action.)

is disputed, and it is requested that if this position is maintained in a further rejection of claims of this application, it should be supported by a sworn Declaration from the Examiner.

In summary, it is respectfully submitted that there is no teaching by Bowser '996 that suggests in any way that the full-coating covering of metal foil taught by Leach '174 could be reduced in extent while still maintaining a significant reduction in thermal stress in the glass substrate. As noted above, Bowser '996's metal foil covers the whole of the mastic 28 'coating' of the glass, and is *not limited to extending only partially across that 'coating' from the edges of the unit*, as claimed. It is especially evident from the dimensions of the Bowser '996 glass referred to by the Examiner (in paragraph 20 of the Examiner's Detailed Action) from column 9 lines 8+ of the Bowser '996 disclosure, that Bowser '996's metal foil does not extend the distance from the edges specified in claim 40, namely, a distance within the range of 100-150 mm.

In all the circumstances, it is respectfully submitted that claims 40-44 are each patentably distinguished from the cited art.

In the latter respect, however, the Weinlander paper was published in connection with the 7th International Vacuum Insulation Symposium of 2005. However, the present patent application is entitled to a March 2, 2004 priority date. It is submitted that claim 40 and each of claims 41-44 are entitled to the March 2, 2004 priority date and, to that extent, the Weinlander paper is not a proper prior art reference with respect to the presently claimed invention.

It is to be appreciated that claims 37 and 38 depend from claim 45 directly and indirectly, respectively. As argued above, claim 45 is clearly distinguished patentably from Gerhardinger et al. '199 and also in view of Leach '174 (United States Patent No. 5,300,174) and Bowser '996. It is submitted therefore, that claims 37 and 38 are correspondingly distinguished patentably from the citation of Gerhardinger et al. '199 in view of Leach 'WO (WO 00/20347); the Leach 'WO document teaches nothing relevant to curing powders into first and second coatings on a glass substrate by

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transmission of heat through the substrate.

The new independent claim 48, is directed to an architectural spandrel unit including all the features of claim 40. It is submitted therefore that claim 48, like claim 40, is patentably distinguished from the cited prior art.

In view of the forgoing, it is respectfully submitted that all of the raised rejections should be withdrawn at this time. If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of Gerhardinger et al. '199, Sopko '601, Leach '174, Bowser '996, Weinlader and/or Leach 'WO references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

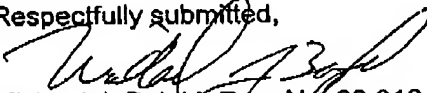
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In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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